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ABSTRACT

In an effort to lessen the social and economic dysfunctions many California farm workers suffer because of the migratory and seasonal nature of their jobs, a three-phase study was conducted to research, develop, and implement a new career system for the farm worker. During the project's first phase, a job task analysis was conducted on four representative farms to develop a new job structure and related training sequences. The job structure and training were implemented on six farms during the project's second phase. Because of the lack of understanding by farm managers of personnel planning, the investigators developed a "Manpower Planning Guide" that identified the man-hour requirements for each work activity for 20 different crops grown in California. It was found that with proper manpower planning many of the traditionally intermittent and seasonal work arrangements could be stabilized into permanent and year round jobs. Phase three of the project dealt with the development and promotion of a new interagency, cooperative agricultural career system. An interagency model was established in Fresno County with cooperation from 13 State, local, and community agencies to deliver new services in three areas: Employer education, short course skill training for unemployed and underemployed farm workers, and employment services. Because of the success of the demonstration model, other California counties have begun their own interagency service for farm workers. (LMS)

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CAREER DEVELOPMENT FOR FARM EMPLOYMENT

A Report Prepared by

Rural Economics Institute
Davis, California

BEST COPY AVAILABLE

Authored By

Donald G. Bennett
Director

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16. Abstracts The study reports the development of an interagency career system for Calif. -farm jobs. The project's origin was the development of a new task related job ladder and training sequences. The second phase was the implementation of the job structure on six sample farms. The results were two fold: The development of new permanent and year round jobs; plus the identification of new skill training short courses and supportive personnel management system. The third phase was the implementation of this system in Fresno County, California by thirteen different state, local and community based organizations. The Employment Development Department, CETA, Title I and 303 sponsor provide outreach, referral and job placement services. The EDD has developed a new employer seminar program. The Cooperative Extension provides a new Personnel Management Farm Advisor position . The community colleges provide short course skill training classes. The positive results of this project has prompted the expansion of the Fresno model to other counties in Calif.

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Farm Management	Personnel management
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SUMMARY

Why shouldn't farm workers have a career ladder like workers in other industries? Why shouldn't farm workers enjoy the benefits of stable employment, job security, higher wages, fringe benefits, career development training, collective bargaining, and unemployment insurance?

Historically, the unskilled and seasonal nature of farm employment did not lend itself to the development of a formal job structure. The traditional farm labor management practice had been to casually hire workers during the peak work periods and lay them off during the rest of the year. The social and economic dysfunctions caused by this casual employment arrangement has never been a primary concern of the farm employer or of those governmental agencies that serve California farming.

During the past fifteen years there has been a dramatic change occurring in California agriculture. The smaller family farm has been replaced by a larger, machine oriented commercial farm. While most of these farms are still family owned and operated, there has been a change in technology and production methods. The need for a large unskilled farm work force has been replaced with the need for a smaller, but better trained and stable work force.

The purpose of the study by the Rural Economics Institute of Davis was to research, develop and implement a new career system that would be applicable to a changing agriculture in California. During the project's first phase, a job task analysis was conducted on four farms to develop a new job structure and related training sequences. The demonstration of this new job structure on a sample of six farms was the primary objective of the project's second phase.

The task of implementing a new job structure on the participating farms was compounded by the lack of understanding by the farm managers of personnel planning. There was no established procedure of planning manpower requirements. The REI staff developed a "Manpower Planning Guide" that identified

the man-hour requirements for each work activity for twenty different crops grown in California. With this information, coupled with the new job ladder structure, the staff determined the manpower requirements and developed job descriptions for each farm.

It was found that with proper manpower planning many of the traditionally intermittent and seasonal work arrangements could be stabilized into permanent and year round jobs. In 1972, the year prior to REI's involvement on the farms, twenty-eight individuals worked year round. Eleven individuals were permanently employed (nine months or more, but over 2,000 hours). The balance of the individuals, 512, worked intermittently or for a short period during the year.

The REI manpower estimate indicated that the six participating farms could support 105 year round jobs. A considerable difference from the twenty-eight individuals actually employed. During the demonstration year, fifty-six individuals were employed year round. This was double the total of the previous year and offered a new potential for the development of year round farm employment.

The results of the Phase II demonstration surfaced two important points: first, with proper manpower planning, many new permanent and year round jobs can be developed on California farms; and secondly, it offers a challenge to the established state and local agencies that serve agriculture to redirect their resources to develop new programs of employer education, skill training and employment services that will promote the stabilization of the farm work force.

The development and promotion of a new interagency, cooperative agricultural career system was the primary objective of the project's third phase. A new interagency model was established in Fresno County. This demonstration has been operational since January, 1976. The results of this one county demonstration have been positive. Twelve different state, local and community based agencies, plus the Fresno County Farm Bureau are cooperating with the REI staff to deliver a new set of services in three program areas:

Employer Education, Short Course Skill Training and Employment Services.

The Cooperative Extension and the Employment Development Department are cooperating with the REI and University Extension, Davis, in a coordinated program of employer education in modern personnel management. The EDD and CETA Title I and 303 program are coordinating in outreach, referral and job placement. The two community colleges are offering farm skill training short courses that are open to unemployed and underemployed farm workers. These classes are being offered in Spanish, the primary language of most California farm workers. Farm employers are attending the short courses and hiring their new employees from the class.

While the development of a career system for farm jobs has come a long way since the start of the original Farm Job Ladder project in 1971, the real impact of this effort is still in the future. With the success of the Fresno demonstration, the institutional support to implement a career structure for farm jobs has been firmly established. California farm workers will have a career ladder like workers in other industries!

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I. INTRODUCTION

Why shouldn't farm workers have a career ladder like workers in other industries? Why shouldn't farm workers enjoy the benefits of stable employment, job security, higher wages, fringe benefits, career development training, collective bargaining, and unemployment insurance? Why should farm jobs be unstructured, undefined and lack a uniform personnel management system?

The traditional work arrangement in California agriculture has been unstructured and casual. Farm managers hire workers during certain peak times and lay them off for the remainder of the year. Farm employers assume no responsibility for the social and economic dysfunctions that result from this casual labor management practice.

Many observers of the California farm labor scene have indicated that the seasonal nature of farm work makes it impossible to develop a rational job structure for farm employment. It has also been stated that the new technological advancements will soon eliminate the need for a farm work force. However, in the past fifteen years the total number of hired farm workers in California has remained relatively stable. The area of greatest decline has been in the category of farmers and unpaid family members.[1]

The introduction of new labor saving machines has influenced the traditional farm ownership patterns and average farm size. According to agricultural extension economists, 20,000 California farms will go out of business in the 1970's.[2] Moreover, the average acreage per California farm has increased from 260 in 1950 to 617 acres per farm in 1969. This expansion in average farm size will continue to increase during the 1970's.[3]

The changes in technology have also influenced farm labor requirements: there

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1. State of California, Employment Development Department, Report 88W.
2. Yeary, Edward A. and Reed, A.D., Major Economic Issues, No. 2, "Finance" University of California, Agriculture Extension, January, 1972.
3. Burlingame, Burt B., Parsons, Phillip S., Reed, A.D., Major Economic Issues, No. 4, "Technology and Scale", University of California, Agriculture Extension, February, 1972.

is a need for a more highly trained worker. This change surfaced when an agricultural education study was completed at the University of California, Davis, in 1971. The UCD research staff interviewed a representative sample of 683 agricultural employers and some of their findings are as follows:[4]

* Obtaining qualified employees is the number one problem of employers. The need to retrain their present employees is the second most serious personnel problem.

* There will be increasing need for agricultural employees in the future, particularly in the skilled and professional job areas.

* The most difficult jobs to fill and the jobs for which there will be the greatest future demand are the equipment operation, maintenance, and repair jobs.

Agricultural employees stated that the lack of job specificity and limited opportunity for upward mobility were their major concerns.

One of the principle members of the UCD research team, Dr. James W. Becket, introduced the idea of a career ladder for farm workers in 1969. Becket stated:[5]

> Some of the farmworkers who will be displaced by machines can be retrained to benefit from the advantages of the machine. To do so, however, requires a classification and structure in farm employment which is not present today. It is impossible to climb the ladder of success if the ladder does not exist. It is our charge in this paper to develop a conceptual model for this classification and structure.
>
> The development of a structure for farm manpower is

4. Thompson, Orville, et.al., Education in Agriculture in California: Occupational Needs and Future Demand, University of California, Davis, 1971.
5. This is an except from a paper he delivered at the Colloquium on Agricultural Manpower Implications in a Changing Fruit and Vegetable Industry at East Lansing, Michigan, July 23, 1969.

> somewhat revolutionary since "unstructured" is the most descriptive term which can be applied to the farm labor scene. As long as there was a great mass of people available to do the farm jobs by hand, a lack of formal structure could be tolerated. However, the introduction of machines to reduce this mass of people makes a structure almost essential, as machines are even less tolerant of casual human relationships than humans.
>
> The structure will come. It will either be brought about through the efforts of agricultural employers out of the necessity for sophisticated, trained people to work in conjunction with sophisticated machinery, or it will be forced through the efforts of employee groups as has been done in other industries. Until the agricultural industry makes the decision that it really wants a highly trained, highly skilled work force and sets about to develop the structure to attain it, or until unionization advances to the point of forcing its own version of the structure onto the agricultural employer, then any structure we might talk about will remain a conceptual model.

After reading Becket's paper, it appeared to us that the idea of a career ladder for farm workers was an important idea and the conceptual model should be replaced with an actual, task related model. Further, the implementation of a farm job structure would get to the core of the social and economic dysfunctions related to migrant and seasonal farm work.

In 1971, we submitted a proposal to the Office of Research and Development, U.S. Department of Labor, to conduct a detailed job task analysis on a select number of California farms to develop a career structure for farm jobs. During the project's second phase we tried the job structure on six participating farms. During the Phase III, we organized and demonstrated a new interagency agricultural career system. A detailed account of each phase is presented in this report.

There are two important points that need to be highlighted in this introductory section. Both points relate to why a job structure has not been developed in agriculture before this time.

It appears that one of the major reasons why farm workers have not enjoyed the same labor benefits of industrial counterparts is due to the exemption of farm jobs from national farm labor legislation. Traditionally, farm jobs have been exempt from the National Labor Relations Act, the federal Unemployment Insurance program and from federal wage and hour provisions. While most workers are entitled to time and a half pay for work over forty hours, farm workers have traditionally received low pay and few fringe benefits.

But perhaps these exemptions from labor benefits for farm workers only reflect a larger public concern for lower food prices. As Darryl D. Enos points out in his study:[6]

> The farm worker is trapped by the farm labor market, the farm labor market constrained by the farm commodity market, and the commodity market constrained by the ubiquitous bid of consumers to minimize spiraling living costs. The contest is between the farm worker and the consumer, not the farm worker and the grower.

Another reason why a farm job structure has not been developed earlier is the inability of governmental agencies to initiate change in the area of farm labor management. Certainly this is not true in the area of technological changes. The University of California has been the vanguard of technological changes. Many of the new labor displacing machines, and the new machine oriented crop varieties were researched and developed with public funds at U.C., Davis. But changes in farm labor management practices have not kept pace with the changes in technology.

There seems to be some historical interrelationship between farmers and

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6. Enos, Darryl D. et al, "Farming and Farm Labor: A Study in California". Southern Illinois University, 1974, p. 85. Funded by U.S. Department of Labor, Office of Research and Development.

various agencies of government such as the Cooperative Extension, Vocational Agricultural Education and the Rural Manpower Service. The traditional roles of these agencies have been to either disregard the issue of farm labor management or promote the availability of a low cost farm labor supply.

As far back as 1951, Lloyd H. Fisher made an interesting observation about the actions of governmental agencies to assure that the labor supply exceeds the levels of labor demand:[7]

> Perhaps the most important of the reasons for the disorganized state of the agricultural labor market is that government agencies have been sufficiently responsive to the claim of labor shortage, so that labor never has been scarce enough to be worth economizing.

It is apparent that the circumstances that have precluded the development of a career structure for farm jobs are varied and complex. But it represents a sad history of neglect. While all of us have benefited from lower food prices, we have done so at the expense of the individual farm worker and his family. But perhaps the social and economic dysfunctions caused by this unstructured and chaotic labor management process has cost us more in the long run. We all share in the cost of welfare programs, manpower training programs, education and housing programs for the migrant and seasonally employed farm worker. The local rural community loses the benefits of payroll earnings being spent in the local economy as most migrant farm workers mail their earnings to another state or to Mexico.

The purpose of this report is to highlight the five years of research and demonstration by the staff of the Rural Economics Institute - from the original conceptual model of a career ladder for farm workers to the development of a highly coordinative interagency program designed to implement a career system for California farming .

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7. Fisher, Lloyd H., "The Harvest Labor Market in California", Quarterly Journal of Economics, November, 1951, p. 470.

It must be recognized, however, that the implementation of the farm career system program is a continuing process that expands beyond the boundaries of this report. As this report is being written, a one county demonstration program is operational in Fresno County and will be expanded to other select agricultural counties in 1977. There is a growing acceptance on the part of farmers and agency officials to implement the various components of the farm career system. The farm career system has also received the support of employee organizations such as the United Farm Workers of America.

It is, of course, impossible to include all of the materials developed in the past five years in this report. There are five additional documents that are available from the Rural Economics Institute. These include:

* Work Activity Statements
* Manpower Planning Guide
* Training Sequences: Orchard, Field/Row Crops
* Job Descriptions Development Manual and Work Activity Checklist
* Fifty Short Course Training Outlines

II. PHASE I

INTRODUCTION

During the eighteen month period of the Farm Job Ladder, Phase I (May, 1971 to November, 1972), the REI assignment was to identify four farms representative of California agriculture (excluding livestock, dairy and poultry) and conduct an analysis of the job task performed on each farm. The primary objectives of the Farm Job Ladder study were:

1. To perform a detailed task analysis on four sample farms.
2. To provide one or more farm job ladders (considering the variations by type of crop and size of farm), including a task oriented description for each of the farms identified.
3. To develop training sequences for each of the jobs that are identified from each of the task data.
4. To make recommendations for supervisory training programs.

About halfway through Phase I, two additional objectives were added to the study. They were:

1. To develop a practical farm related management outline that would relate the task data to the management process.
2. To develop farm machine maintenance training curriculum from the maintenance task data.

There were two activities that took place during the first months of the study. The first was to form a Project Advisory Committee. Secondly, we were to identify the farmers who would be willing to participate in our task analysis study. The first meeting of the Project Advisory Committee was held in June, 1971. The results of this first Committee meeting was far from encouraging for the project staff. Although the Committee members expressed their support for the project's objectives, none were encouraging about the ease of identification of four farmers needed to participate with us in the

study. Prior to the meeting date, the project staff had made contact with several farmers, but with little success. Members of the Advisory Committee suggested that we contact Mr. Fred Herringer, First Vice President of the California Farm Bureau Federation. It was felt that his influence and advise would be helpful. This proved to be correct as Fred Herringer has been the prime participant and most influential factor in the success of the Phase I activities.

FARM SELECTION

Establishment of a criteria for farm selection was made necessary by the broad nature and range of diversification in California agriculture. Recommendations from the Advisory Committee were instrumental in formulating this criteria. The results were as follows:

1. In lieu of a broader approach, selection should be limited to give emphasis to the major areas of agriculture.

2. Poultry, dairy and livestock production would not be considered due to the relative stability of the labor force in these industries.

3. Farms should be selected that have representative employment periods that range from seasonal to full-time.

4. Cross reference of data should be provided by considering two farms of the same type.

5. Deciduous fruits and field and row crop farms were selected as the types to be studied because they represent the major areas of seasonal and production agriculture.

This formed the general basis for the selection of the farms to be studied.

Farmers who met the above requirements were contacted with the aid of Mr. Herringer and the Agricultural Extension Service, U.C., Davis. Farmers were approached individually in an effort to obtain their support and cooperation in participating in the study. A description of the four participating farms is as follows:

Farm A:

This farm was the smallest of the four farms included in our study. While it was not owner-operated (operated by a farm manager), it was perhaps the most typical of farms in California agriculture in its methods and practices.

This operation farmed four hundred acres of peaches, prunes, pears, and walnuts. Five men were employed on a year-round basis as manager, general foreman, crew foreman, and two tractor operators. During the pre-harvest and harvest seasons, an additional work force was hired to do such activities as thinning, stabilizing, irrigating, and picking. If this operation got behind in the harvest schedule, the manager would rent mechanical equipment.

An additional feature of this farm was a U.S.D.A. run grading station. They also owned and ran a prune dehydrator. The farm manager hired students to help in the dehydrating activity and used his own work force to fill in behind the student help when they returned to school.

All of the minor repair of the small equipment (tractor and forklifts) was done in their own shop facility. However, any major repair was done in town by a private machanic. The farm manager felt that with some additions, their shop would be equipped to do this work, but he found at that time, that it was more economical to have someone else do it. The manager spent a considerable amount of his time in the shop, but felt that he did not have enough work to hire a full time mechanic.

In the fall of the year, some of the field crew would work for a neighboring farm that grew olives. After the olive harvest, some of the crew returned to the Farm A operation to begin the pruning activity. The farm manager felt that the pruning activity must be accomplished only after the leaves dropped and the trees were dormant. Consequently, the pruning was done with a large crew for a relatively short period of time. This meant that there would be periods of unemployment for the field crew until the start of the next activity.

Farm B:

This operation farmed two thousand acres of tomatoes, sugar beets, milo and almonds. Most of the activities were performed mechanically although some were still performed by manual labor. The work force was broken into three categories: skilled, semi-skilled, and seasonal. Employment in the three categories throughout the year was as follows:

	J	F	M	A	M	J	J	A	S	O	N	D
Skilled: mechanics and shop people	4	4	4	4	4	4	4	4	4	4	4	4
Semi-skilled: tractor drivers, etc.					6	6	6	6	6	6		
Unskilled: hoe and thin, irrigate				25	25	25	15					
Unskilled: harvest								54	54	54		
TOTAL	4	4	4	29	35	35	25	64	64	64	4	4

It must be understood that these categories were defined by the owner for his own use, and does not represent a job categorization used by other California growers.

The major crops of this operation were milo, tomatoes, and sugar beets. The almond operation, not a money-making or money losing proposition, was for the purpose of supporting the four workers during the winter pruning season. During the months of November, December and January, there would be virtually no activity if it had not been for the almonds.

This ranch utilized the services of the bank for the purpose of payroll as well as for cost analysis for each crop.

In terms of maintenance, the shop was well equipped. When major overhauling of tractors or other equipment was necessary, the equipment was sent to the dealer. There are two reasons for this: first, the dealer trained the

personnel and had the necessary tools to do the job faster and better; second, the work was guaranteed. However, for any other maintenance efforts, the work was done at the shop.

Farm C:

This operation farmed twelve hundred acres of prunes, peaches, and pears. All of the prunes were harvested mechanically, but the peaches and pears were harvested by hand. Approximately thirty workers were hired on a year round basis. This year round work force pruned over a longer period of time.

The majority of acreage on this farm was in prunes. Five mechanical prune harvesters had been customized to provide greater efficiency. Major repairs were done on the farm as a full-time mechanic was employed.

In the peak harvest season, this operation utilized an additional labor force of approximately thirty-five workers. The peak labor force was hired and paid by the owner-operator. This operation did not utilize the services of a farm labor contractor. The peak seasonal work was used mostly in the picking of peaches and pears. It was anticipated that in the next few years mechanical harvesters would be used for the peach crop. Mechanical harvesters were not considered likely in the near future for the pears.

Farm D:

This farm was a well diversified and large operation that was primarily involved in row and field crop production agriculture. Of the seventy-five hundred acres in production, seventy-three hundred were in thirteeen row and field crops: two hundred acres were in two deciduous fruit crops.

Labor requirements were minimal due to the high degree of mechanization. Less than twenty-five workers were employed on a full-time basis, while one hundred and twenty (ninety women and thirty men) were hired during the seasonal peak.

Management utilized several agricultural services to facilitate in the operation of the farm. An agricultural consulting firm was used to augment decisions and provide technical assistance to management. Also, a computerized cost accounting service was utilized. This provided periodic data in the cost, profit and overhead for each crop in production. Professional engineers were consulted to provide the design of hydraulic systems that are employed in the shop to construct specialized machinery.

The four farms selected gave a good cross-section of the tasks performed in California agriculture because they represented a large number of major crops. These crops represented fifty-eight percent of California's total producing acreage (eight million acres) in 1969. Also, there were some specialized operations, such as dehydrating and seed preparation, which gave insight into the trend that had forced production agriculture into agri-business.

TASK ANALYSIS METHODOLOGY

Once the four participating farms were secured, it was time to train the staff in the techniques of job analysis (often referred to as task analysis). The primary training responsibility was assigned to the Assistant Project Director, and he received technical assistance from Mr. J. Edmond Phillips, Manager, Occupational Analysis Field Center, Department of Human Resources Development, Los Angeles. The training followed the methodology developed by the U.S. Department of Labor, and detailed in their publication entitled, Handbook for Analyzing Jobs, 1972.

The task analysis process usually begins by identifying all of the jobs that existed within a given work system. It was accepted that a job did not exist alone, but was related to a number of other jobs. Further, the interdependencies and relationships among the jobs in a given system could not be ignored.

This approach to task analysis was appropriate when the jobs were clearly defined. However, as stated by Dr. Becket and others, the jobs in California production agriculture are not clearly defined. Consequently, the identifiable

interdependencies of jobs were more difficult to define. We recognized that each farm manager assigned duties to his workers based on his knowlege of what needed to be done, and within some form of a work structure. However, jobs were seldom defined, as such, and no formal system existed to train workers and move them from one job to the next more difficult job. When career ladders for farm jobs could be defined, a field hand could move upward to a better paid position through a progression of jobs with supplemental training. This would satisfy the employer's need for a more skilled work force and provide an opportunity to the worker. However, we had found dependencies of functions and activities do exist, and are common to all farms of similar size and crop diversification. It was agreed that in this situation the task analysis would be conducted for the purpose of "job structuring", not for the purpose of "job restructuring".

Our approach to job structuring was to look at the total mission of the farm and, through logical dissecting, reach the task level. All tasks required to accomplish the mission would be identified and grouped into positions which would follow logical patterns based on what needed to get done as a whole. The logical dissection would be accomplished first by identifying each farm as a system with objectives that could be clearly defined. In our case, the objectives of the farms were to produce and market certain crops in a number of acres. Second, each objective was broken down into functional areas of sub-objectives. In this study, we had identified six major functions (ground preparation, planting, cultural practices, harvesting, maintenance and administration) that were present in each farm system. It was proposed that these six functional areas were found on all nut, fruit, vegetable row and field farm operations. Third, each functional area had to be divided into activities that had to be performed in order to accomplish the sub-objective or function. Fourth, each task required to perform each activity was identified.

A break down of the functions and activities identified for each farm participating in the study is as follows:

I Ground Preparation

Push Out	Ridge	Harrow
Disc	Stake	Land Level
Survey	Plow	Roll
Landplane	Contour	Fertilize
Equipment Movement	Install Splash Box	Springtooth
Chisel	Install Riser Pipes	Float
Ring Roll	Close Contour Ends	Flood
Incorporate Spary	Furrow	

II Planting

Equipment Movement	Sled Plant	Drill Plant
Plant	Aerial Plant	Cover Seed

III Cultural Practices

Ridge	Irrigate	Break Ridges
Disc	Landplane	Brush Removal
Spray Roads	Stabilize	Green Drop
Cut Blight	Tree Removal	Equipment Movement
Spray	Prune	Fertilize
Trim	Chop Brush	Push out
Subsoil	Precision Cultivate	Ditch Fold In
Thin	Furrow Cultivate	Ditch
Flat Roll	Flail Mow	Hand Weed
Furrow	Drain	

IV Harvest

Break Ridges	Disc	Landplane
Sanitation	Handle Bins	Pick
Weigh	Sample	Shake
Disposal	Dehydrate	Bin Turn
Mechanical Harvest	Wash	Quality Size
Dig	Load	Ground Preparation
Sort	Haul	Combine
Bank Out	Hand Harvest	Equipment Movement
Windrow	Dry	

V Maintenance

Overhaul	Set-up	Build
Preventative Main.	Service Lube	Maintenance Adjustment

VI Administration

Determining Objectives: schedules, requirements, choices (crops), methods	Negotiating: sale of crops, land-lease or purchase, purchase of equipment, supplies, services, loans	Accounting
Application for participation in various farm programs: feed grain program, sugar act program, etc.		
Hiring and firing of Personnel		

The next step was to train the staff in the techniques of task identification, writing and rating. It was agreed that the staff would not rate each task to all of the worker trait scales unless a specific task warranted such a rating. Each task would be rated to determine its relationship to the following criteria:

1.) Worker functions: relationships to data, people, things

2.) Worker traits: the worker's characteristics and abilities that contribute to successful performances on the job, in terms of:

   A. General educational development: those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of "tool" knowledges, such as language and mathematical skills.
   B. Specific vocational preparation: the time needed to learn the techniques, acquire information, and develop the facility needed for average performance in a specific job-worker situation.

To assure that the staff had a full appreciation of the total job analysis process, additional training was sought from the Occupational Analysis Field Center. On November 18, 1971, Mr. J. Edmond Phillips came to Davis to conduct a one day training session for the FJL project staff on job restructuring. The highlights of the job restructuring training were as follows:

1.) Task analysis is conducted for the purpose of understanding the elements of jobs.

2.) Job restructuring is a specialization of job analysis, where the understanding of the job is taken and applied to accomplish change.

3.) Job restructing should have a purpose. The purpose has a direct effect on the way the tasks are grouped.

4.) There are several structural characteristics one must keep in mind when working on job restructuring:

   a. Sequence of task performance; functional or chronological
   b. Task interrelations (for priority set-up); identify dependent and independent tasks
   c. Frequency and duration of performance
   d. Level of Performance

5.) Approach to a job restructuring study:

   a. preparation
   b. task identification
   c. task evaluation
   d. task regrouping
   e. recommendations
   f. implementation

6.) Flow chart for job restructuring:

   a. determine the relationship of the jobs to the system of which they are a part
   b. describe and record the tasks that comprise each job
   c. estimate and record time required to accomplish or frequency of each task
   d. rate each task in relation to worker functions
   e. rate each task in terms of general educational development (GED)
   f. rate each task in relation to important aptitudes
   g. rate each task in relation to other important worker traits
   h. group tasks according to worker functions and worker traits
   i. evaluate groups in terms of kind of work performed or technology involved
   j. review the process flow to determine if the groups are feasible in this respect
   k. determine if time totals will justify full-time jobs
   l. evaluate and adjust groups until most feasible and practical arrangements of tasks are developed
   m. prepare detailed job descriptions and career ladders

By the end of November, 1971, the project staff had identified, written and rated all of those tasks involved in the major functional area of harvesting. Tasks involved in most of the post-harvest activities, such as plowing-under, were also identified. The farm cycle was now moving into some of the early ground preparation activities such as sub-soiling. The next major functional area was maintenance.

On January 15, 1972, the FJL project was extended for an additional nine

months to allow the staff the opportunity to view the job tasks for a full farm season. By the end of April, 1972, approximately ninety percent of all the farm tasks were written and rated.

During this same period, three additional events took place: a luncheon with the participating farmers; an advisory committee meeting; and a second training session with Mr. Phillips. The luncheon meeting with the participating farmers was the first time the farmers as a group had an opportunity to interact with the staff, with members of the advisory committee and with each other. A number of issues were discussed during the informal gathering and are summarized as follows:

1.) The farmers were experiencing difficulty in obtaining dependable, skilled workers. During the current pruning season, skilled pruners were hard to find and to retain. The skill shortage was more apparent this year than last.

2.) There was an agreement that as farms become more mechanized, there would be a need for a more skilled work force.

3.) It was expressed that farmers, in general, had been successful in management of personnel.

4.) Worker demands were beginning to have an effect on farm employment. A piece-rate pruner would now refuse to work in orchards that were muddy unless the farmer provided platforms or paid an hourly wage.

5.) The idea of alternative manpower practices was favorably received and continued involvement in the project, especially in the job structuring phase.

As of July 1, 1972, the staff had completed the task identification and analysis of all of the job tasks found on the four participating farms. With the addition of the preventative maintenance and administrative function, the total tasks observed, written and rated exceeded 1,900.

TASK HIERARCHY

After all of the farm job tasks were identified, written and rated, the staff had the assignment of job structuring. The tasks had to be put back together again in some comprehensible order. The sequence of farm activities had to be considered, as well as the level of complexity required.

Shop

Level I included those tasks which primarily are performed by hand with the aid of tools. No technical knowledge was required, just short demonstration.
Level II included those tasks which were performed by hand with the aid of tools and equipment. Some technical knowledge was required and ability to follow written instructions, as well as diagramatic.
Level III included those tasks which were performed with tools and equipment to attain high levels of precision. Technical knowledge of mechanical systems was required and ability to apply principles of rational systems. Supervisorial duties could be assigned.
Level IV included those supervisorial tasks necessary for the direction of activities to accomplish objectives set forth. Ability to coordinate and schedule activities of the shop with field activities was necessary.

Field

Level I included those tasks which primarily were performed by hand using work aids, and driving pick-up truck to transport supplies. No technical knowledge was required, just short demonstration.
Level II included those tasks performed by hand with work aids which required some knowledge and tasks which involved the driving of equipment which did not require high levels of precision.
Level III included those tasks which primarily were performed by driving of equipment. Technical knowledge was required to attain precision on the work performed. Ability to follow written and diagramatic instructions was required. Supervisorial duties could be assigned.
Level IV included those supervisorial tasks necessary to direct the field activities. Ability to coordinate activities of the farming functions and to determine manpower needs was necessary.
Level V included those middle managerial tasks of analyzing data to make necessary decisions for the accomplishments of the operational objectives of the farm, which includes field and shop activities.

Once the task hierarchy had been constructed, the next step was to develop the new job arrangements. The job arrangements had to be practical in design or the farm employer would see little value in the adoption of a new method of personnel management. Further, they must also offer a significant departure from the traditional methods of farm personnel management to provide continuity of employment and an opportunity for training and upward mobility for the employee.

FARM CAREER LADDER

The first career ladder developed during the Phase I reflected fifteen different jobs arranged in a six step hierarchy. The first level of work activity consisted of hand tasks such as picking, packing, sorting, hoeing, weeding, etc. The second level represented a combination of hand tasks and non-precision equipment operation. In the next job, equipment operator/agricultural worker, the equipment operation task assumed the primary importance and the hand task, such as the task sequence related to irrigation, was used as the secondary activity. This combination reduced the intermittency of employment and provided the opportunity for year round work.

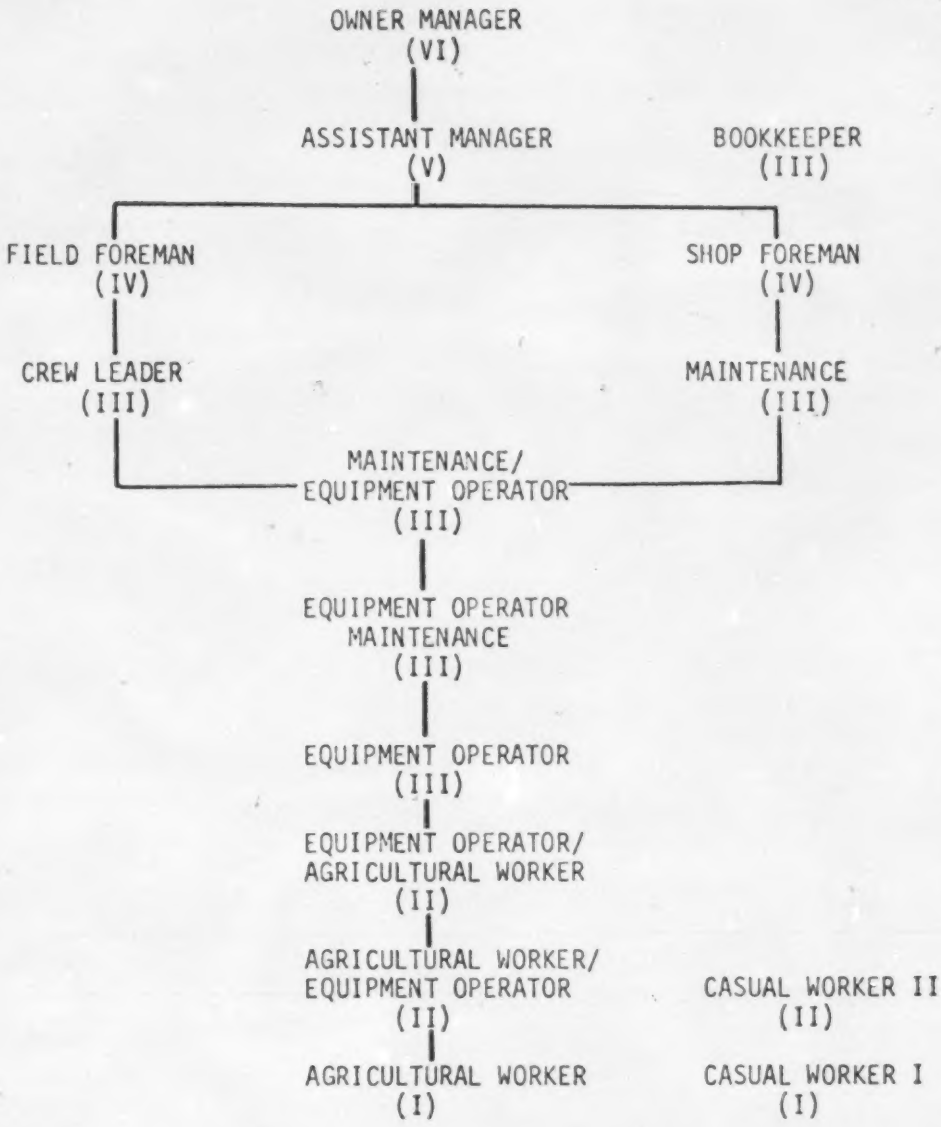
There were six job groupings in Level III and they represented a combination of equipment operation and equipment maintenance task. There was one Level III job that was a field crew leader. The fourth level was the foreman job, both field and shop. The fifth and sixth levels were management positions.

Our initial thinking in developing this career ladder structure was to identify new job arrangements that would replace the traditional farm jobs listed in the Dictionary of Occupational Titles (DOT). There had been some discussion regarding the applicability of the DOT farm job titles to California agriculture. The existing job titles seemed to represent seasonal work activities such as pruning, irrigation, and harvest work. Further, the job titles were too crop specific in their definition. As an example, there was a separate job description for farm hand-grapes, farm hand-grain, farm hand-berries, etc.

We found during the Phase II demonstration of this project that our new job arrangements were too confining and did not fit the diversity of crops or specific needs of the six demonstration farms. Consequently, we changed the career ladder structure to an eight step hierarchy and simply grouped tasks together by degree of complexity. We did not separate shop and field task, nor attempt to give emphasis to a job by assigning primary and secondary

PHASE I

FARM CAREER LADDER



REVISED

AGRICULTURAL CAREER LADDER

el	Title	Activities	
I	Owner/Manager	Negotiates contracts (banks, sales, purchases); confers with ag. specialists; develops goals, strategies, policies; analyzes reports; reviews and prepares crop budgets; coordinates equipment and supervisors' time schedules; plans crops and crop rotation programs; and directs and/or performs accounting and payroll activities	
I	Assistant Manager		
	Foreman	Analyzes and solves work problems; estimates activity man hours; directs work; assigns duties; determines supply needs reports progress to manager; trains and orients workers; collects and verifies time cards; and may also maintain crop costs and production records	
V	Maintenance	Trains workers; monitors work activities; performs engine overhaul, fabrication welding, engine diagnosis, testing and adjusting; operates specialty equipment at peak demand times and maintains equipment repair and fabrication cost records	
V	Equipment Operator/ Maintenance	Pace set crews; trains, orients new workers; performs cutting and welding to repair implements; implement set up; minor tune-up; complete service lube; equipment operation of Level III; and maintains service lube records	
		Orchard/Vineyard	Field/Row
II	Equipment Operator	Precision operation of trimming, cultivation, spraying, harvest and hauling equipment 12 months employment	Precision operation in ground preparation, planting, spraying, cultivation, harvest, and hauling equipment 10-12 months employment
I	Agricultural Worker/ Equipment Operator	Pace set field crews; bud & prune trees/vines; operate harvest support equipment (bin, trailer, forklift, etc.) and irrigate 12 months employment	Pace set field crews; operate open field non-precision equipment operation; operate harvest support equipment (bin, trailer, forklift, bankout wagon) and irrigate 8-12 months employment (2500 hours)
I	Agricultural Worker	Hand pick, pack, sort, tie, hoe, thin, load trucks, clean up grounds 6 months employment	Hand pick, pack, sort, thin hoe, handle bins, load truc and clean up grounds 6 months employment

work activities. We felt that the new system allowed the farm manager more flexibility in developing the specific job arrangements he needed to perform the work activities on his farm. There were some major implications related to this new system, especially in assigning job codes and determining eligibility for unemployment insurance. We suggested that farm managers develop job descriptions based on their work needs and not by the titles listed in the DOT. This practice may cause some confusion when it comes time to determine eligibility for unemployment insurance.

TRAINING SEQUENCES

One of the objectives of the FJL, Phase II, was to identify the training sequences for each work activity on the farm career ladder structure. We expanded this activity to include three additional categories: Instructor and Trainee Activities; Tools and Equipment Involved; and Training Purpose and Objective. A separate training sequence manual has been developed for orchard, and row and field crops.

The "Training Sequence - Orchard" manual lists the training information for sixty-six job tasks. A sample page from this manual is presented in this report, but a copy of the complete training sequence can be obtained from the REI office in Davis, California.

MANAGEMENT AND SUPERVISORY TRAINING MATERIAL

Another Phase I project objective was to develop an outline for a farm personnel management and supervisory training program. While we completed this outline and attached it to our Phase I final report, we continued to refine and improve on this outline through the project's second phase. During the Phase III, we began to develop curricula for agricultural personnel management and supervisory training classes. We now have an extensive file of training material and we use this material in the personnel management classes we teach for the University Extension, University of California, Davis.

A detailed outline of these training classes will be presented in the chapter covering the Phase III activities.

ADVISORY COMMITTEE

The members of the Project Advisory Committee were of invaluable assistance to the staff during the course of the Phase I. They demonstrated a willingness to actively participate in the committee meetings, and were willing to meet with the staff at other times. The Phase I Project Advisory Committee members were:

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III. PHASE II

INTRODUCTION

The primary objective of the Phase II was to try out, refine and assess the applicability of the farm career ladder on representative farms in Northern California. The demonstration was designed to test whether or not actual use of the farm career ladder structure would improve manpower management capabilities of these farmers. We sought to determine which farm labor needs could be planned and organized to improve the continuity of employment and provide opportunity for job upgrade at all levels of the work force.

We determined to provide staff for on-sight technical assistance to each participating farm manager to assure understanding in the implementation of the Farm Job Ladder. We felt that the involvement of farmers and workers in the implementation phase would strengthen the commitment to use the new practices in the future. We sought to involve each of the participating growers in the FJL Advisory Committee to further connect the practical and theoretical expertise of our project resources.

In our search for farms to participate in the Phase II, we looked for a mix that would be ideally typical of farming in Northern and Central California. For convenience we wanted the farms that offered the approximate size and mix of field, row and orchard crops located within a 100 mile radius of Davis. In several weeks of searching, we were able to enlist a fitting array of farms.

Two of the four farms that participated in the Phase I agreed to participate in the Phase II demonstration. We added two orchard farming operations in the Butte County area. One of the farms was a 2,753 acre farming unit. The major crop of this operation was walnuts, with a small acreage in prunes, peaches and almonds.

The second farm was a unique operation that was a combination of a family farm and a farm management company. The total acreage farmed by this orgainzation was 1,536 acres, but in eleven different farming units.

We were able to secure the support of two family-owned and operated field and row crop farms. One of the farms had a combined field and row crop operation consisting of 3,530 acres. The second farm was a combined orchard, field and row crop operation. The total acreage farmed by this family-owned unit was 2,845.

While we recognized that we were working with farms that were above the state average in farm size, we felt that we could adjust our findings to smaller farming units if the demonstration proved successful. Further, since it was not easy to find farmers who were willing to experiment with their labor management practices, we had to work within the constraints imposed upon us.

MANPOWER PLANNING

Our first task was to develop a process to objectively identify the manpower requirement for each farm. The traditional process of farm manpower planning is to assess the work demands based on past experience, then add or release personnel as the season progresses and as the work load dictates. With the exception of a few year round jobs (depending upon the size of the farm, the labor intensity of the crop, and the availability of "good" people), the farmer will dip into the labor pool for workers as the need arises. Often, however, all of the farmers in a given area will need workers at the same time. When this occurs, there is a labor shortage and the farmers compete with one another for workers.

The process we used for each farm was the same. We used the "Manpower Planning Guide" developed during the Phase I period. This Guide lists the man-hour requirements per acre for each work activity for twenty major crops grown in California. These crops included: alfalfa, almonds, sugar beets, broccoli, cauliflower, citrus, grapes, lettuce, milo-corn, onion seed,

peaches, pears, prunes, rice, safflower, tomatoes, vine seeds, walnuts, wheat and barley.

By computing the man-hour requirements for each crop activity times the number of acres for each crop, we were able to predict the amount of man-hours needed for each farm. We then applied the man-hour requirements to the farm career ladder structure to determine the number of workers required at each job level.

We found the Guide to be a remarkably accurate method of estimating the manpower requirements for each farm. There were three factors, however, that must be considered when using this document. These factors could influence the accuracy of the estimate. First, there must be a correct accounting of the work activities for each crop; secondly, the estimates for each work activity must be based on the crop condition of a normal year, therefore, any deviation should be accounted for in the planning process; and thirdly, only work activities related to crop production are represented in the document. Work activities that are related to general grounds and building maintenance should be added to the work activity statement and planned over a five year period. These tasks would provide supplemental work activities during slack periods.

During the demonstration phase, it became apparent that each farm represented a different array of labor use styles that had to be dealt with on an individual basis. We quickly found that no predetermined set of job arrangements could fit precisely the manpower requirement of each farm. Therefore, we quickly abandoned the Phase I Farm Job Ladder structure (as indicated earlier in this report) and began to develop new job descriptions that fit the needs of each farm.

In developing a manpower plan for each of the six farms, we used the same three steps: first, we used the Manpower Planning Guide to determine the manpower requirement at each level on the Farm Job Ladder structure; secondly,

we developed an organizational chart that displayed the manpower requirements by job title and functional job relationships; and finally, we reviewed and negotiated a manpower arrangement with each grower for his farming operation. During the review process, we found that each grower had some adjustments to make to our proposed set of job arrangements to accommodate the management style and the traditional labor use pattern that had been established for that farm. On five of the farms, however, their changes did not significantly affect the new structure we proposed. On one farm, the grower could not accept our organizational design since he was in the process of negotiating a contract to assume the management of four additional farms. The contract had not been finalized and the grower was having some difficulty with his financing. This grower did seek our help, however, in developing job descriptions for his upper level management, shop and foremen jobs.

Once an acceptable organizational design and job descriptions were developed for each farm, we began to identify individuals to fill the newly defined jobs. In all cases we attempted to fill year round jobs with existing employees. This activity was not difficult for the upper level jobs such as manager/owner, assistant manager, foreman and maintenance. There were men working on each farm that could easily be identified to fill these positions. On two of the farms we identified additional foremen positions. At one farm, the position was filled by one of the existing year round employees. This new job arrangement resulted in a pay increase and other fringe benefits to this individual. The foreman position at the other farm required the recruitment and selection of a new employee.

The real impact of the Job Ladder structure was seen at the third level: equipment operator and equipment operator/maintenance. There were ten new equipment operator/maintenance jobs developed as a result of our analysis. All ten of these jobs were filled by individuals who worked seasonally on the farms the previous year. This was a typical example of the casual farm job arrangements that can be improved through rational manpower planning.

Perhaps the biggest challenge to our manpower planning process was the development of year round jobs at Level II. As a result of our manpower analysis, we identified forty-four Level II year round jobs. Unfortunately,

only ten of these year round jobs were actually filled. It was apparent that during the first year demonstration phase the six participating farm managers were more interested in using the Farm Job Ladder structure to stabilize their mid-level (Level III) and upper level jobs and felt that more time was needed to work on the stabilization of the Level II jobs. One farm manager, however, went further than the others to provide year round jobs at the second level. The results of this positive experience convinced us that when management is committed to the job stabilization year round employment can be a feature of many jobs at this level.

It must be recognized that the identification of year round farm jobs is only the first step in the employment process. Once the employer can accept the new job arrangement, the employee must be willing to accept the full implication of this change. For years farm workers have been working within a system that offered little or no job stability or security. They have adopted a life style to accommodate this casual labor management arrangement. Therefore, for management to suddenly offer permanent employment to a worker may require some adjustment to their lifestyle. To those farm workers who have families and responsibilities in other states or Mexico, the offer of year round work will be turned down unless arrangements for their family and permanent housing can be obtained. The pressure for job stability will cause a strain to some work relationships and lifestyle that has developed over the years.

It will take a few years before the work patterns of the Level II jobs can be adjusted. There is no doubt that the farmers' need for a stable and well trained work force will increase, even at the Level II jobs. Further, as the employers' labor costs increase with the adoption of unemployment insurance and other fringe benefits, there will be added pressure to rationalize their use of labor, but this will create added pressure on the Mexican alien and out-of-state workers to either accept permanent employment in one area or be replaced by someone from the local labor market.

COMPARATIVE MANPOWER ANALYSIS

To understand the changes in manpower use practices on the five participating

farms, we compared the employment pattern for the year prior to the demonstration (1972), to our manpower estimate and to the actual employment pattern during the demonstration year (1973). This comparative analysis provided some interesting insights into the traditional farm manpower practices and how rational manpower planning can create more stability in farm employment.

First, it must be recognized that prior to our involvement on the five demonstration farms, there was no operational job structure. To establish continuity for a comparative analysis, we reviewed the 1972 payroll records with each farm manager and assigned each recorded worker to a level on the Farm Job Ladder structure. Of course, this process was relatively simple for the upper level employees, Level III maintenance and above, but was more difficult to assign a level to the workers at the lower levels. However, a review of the hourly wage rate gave us a good indication of their relative status in the organization.

In reviewing the Manpower Comparison chart it was apparent that in 1972 all jobs below the maintenance level were filled intermittently. Even the workers who operated the expensive equipment were not retained on a year round basis. Equipment operators were hired when needed and laid off during slack periods. They were expected to find employment elsewhere and if they were unemployed when the work activities resumed, then they were hired back. Often, however, the demand in a given area for equipment operators occurred at the same time so all farmers competed for the same limited number of good operators. Instead of planning supplemental work activities during the slack periods, each farmer was willing to play the traditional game of casual hiring practices (a variation of musical chairs) and hoped for the best when the work load increased.

To some degree this practice changed during the demonstration year. Ten new year round equipment operator / maintenance workers and eight year round equipment operators were hired. While this was an improvement over the previous year, our manpower estimate indicated the possibility of thirty two year round jobs at this level. Our estimates were reasonably accurate

PHASE II
MANPOWER COMPARISON
(SIX FARMS)

b Title d Level	Last year 1972	Months Employed	REI Estimate	Months Employed	Actual 1973	Months Employed
nager/Owner VI	7	12	7	12	7	12
sistant Manager V	1	12	1	12	1	12
reman IV	8	12	10	12	10	12
intenance III	4	12	4	12	4 * 1	12 * 6
intenance/Equipment Operator III uipment Operator/Maintenance III	5	9-12	18	12	10 * 5	12 *6-10
ew Leader III	6	10-12	7 *1	12 *10	6 * 1	12 * 7 1/2
uipment Operator III	40	1-12	14	12	8 *35	12 *1-9
uipment Operator/Ag. Worker II	8	12	44	12	10	12
. Worker/Equipment Operator II	96	1-12	23	9-10	93	1-9
riculture Worker I	376	1-8	314	1-5	351	1-8
Total	551		443		542	
12 months (year round)		28		105		56
9-12 months (permanent)		11		24		0
1-12 months (intermittent)		512		314		486

*Part-time

since forty workers were actually hired intermittently to fill the remaining fourteen jobs (five equipment operator/maintenance and thirty-five equipment operators).

This pattern of intermittent employment is even more dramatic at the second level . We estimated that forty-four year round jobs were possible at this level, but only ten were established. Instead, the traditional intermittent hiring practice prevailed. The Level II tasks were performed by workers who were casually employed both at the Level I and Level II range. With the exception of the positive experience on one farm, our manpower estimates had little impact on reversing the traditional casual employment pattern at the lower levels.

As indicated earlier in this report, the impact of the project's demonstration phase seems to be in two areas: the development and implementation of a viable manpower planning technique; and the stabilizatio of farm employment at the equipment operator level and above. The stabilizing of employment at the lower levels was not achieved except on one participating farm. However, we feel that since 1973, the demonstration year, the economic incentive to rationalize labor use at all levels has been greatly enhanced by the enactment of new labor laws and the unemployment insurance program covering farm workers.

The new laws have increased the cost of labor turnover and once this message is clearly transmitted to farmers, there will be a shift to a greater concern for permanent and year round farm employment. Further, this sets the stage to explore other structural changes to farm employment such as the implementation of an apprenticeship program. The Farm Job Ladder and the other support components developed during the Phase II demonstration (such as the short courses) could provide the source data for the development of a structure for a farm journeyman job and apprenticeship standards.

SHORT COURSE SKILL TRAINING

The development and implementation of the new job arrangements surfaced an

JOB DESCRIPTION
PHASE II DEMONSTRATION FARM

Equipment Operator/Maintenance, Level III

Description of Duties:

Primarily: Operates equipment to plant, cultivate, harvest, and haul crops
Secondarily: Works in the shop to perform engine tune-up, service lube and basic implement repair.

November-March: When unable to work outside in crop harvesting, hauling, and planting of winter crops, works in shop to service lube, tune-up and repair implements.

April-September: Operates equipment to prepare ground, plant, cultivate, harvest, and haul crops. Operates wheel tractors, crawler tractors, trucks, and trailer combinations.

Salary Range: $600-$750 per month

Conditions of Employment:

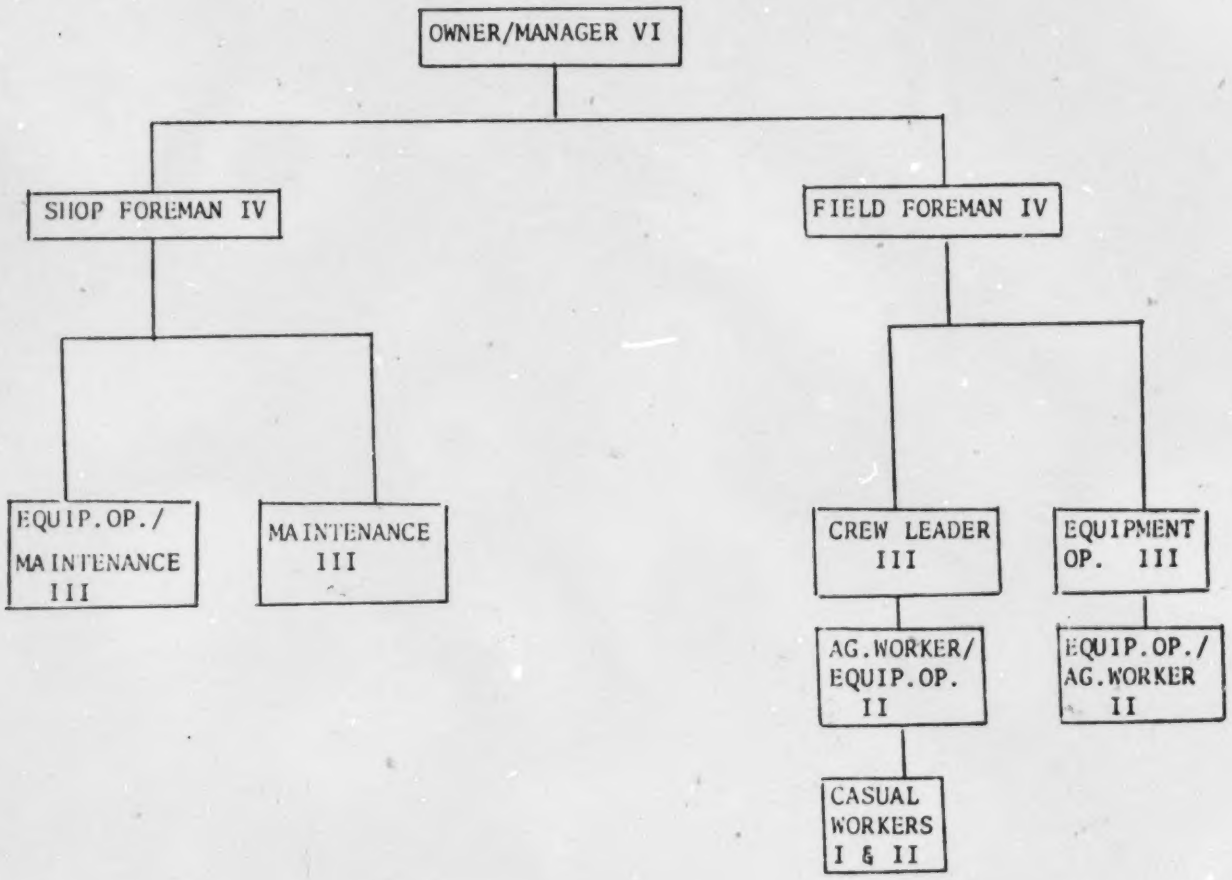
A. Length of Employment - 12 months
B. Hours per week - 60 to 75
C. Days per week - 6 to 7
D. Pay periods - bi-weekly

Minimum Qualifications:

A. Experience in all types of farm equipment operation.
B. Ability to perform service lube and minor engine tune-up
C. Capable of learning arc welding and acetylene cutting to repair farm implements.
D. Must be able to follow oral, written, or diagramatic instructions.
E. Must be able to obtain a Class I operators license.

Skills Required	Entry	On-the-job Training
Equipment Operation	X	
Service lube	X	
Minor tune-up	X	X
Implement repair	X	X
Acetylene cutting and welding		X
Arc welding		X
Minor engine adjustment		X

ORGANIZATIONAL CHART
PHASE II DEMONSTRATION FARM



additional challenge to the project: the need for a skill training program that would compliment the job ladder structure; provide short term training in a specific work activity; and be acceptable to farm workers and taught in their native language, which in most cases is Spanish. Unfortunately, the traditional adult school program did not meet any of the above criteria.

To satisfy the first two training requirements, job related and short term, the REI staff developed fifty short course training outlines based on the training sequences developed during the Phase I. Next, we identified a few school officials who would support the development and implementation of this new type of skill training program. With the help of the state vocational agriculture adult education specialist and a vocational agriculture teacher at a local community college, a few trial short courses were offered.

The first course offered was in Basic Farm Welding. With the help of the local Farm Bureau and State Employment Service, information about the class was distributed to the agricultural community. During the first class session thirty-two people enrolled. This unexpected enrollment figure was encouraging since the average enrollment for the regular adult evening welding class had been four students. A survey of the short course students indicated that they were attracted to the class by the short term and farm job related nature of the class.

During the winter of 1973-74, five different short course training programs were presented for the first time. During the winter of 1974-75, the number increased to twenty-one different short courses that were offered in more than a dozen communities. During the following year, the short course offerings increased to over fifty classes. During the winter of 1976-77 the enrollment in agricultural short courses throughout the state had increased to over 1200.

To keep pace with the growing demand for short course information, the State Department of Vocational Education awarded a $20,873 grant to the Bureau of Agricultural Education and California State University at Chico to develop short course teaching guides. There were sixteen teaching guides developed for the following courses: Basic Hydraulic System Maintenance, Lub and Filter

System Maintenance, Farm Tractor Electrical Systems, Engine Tune-up, Pesticide Safe Use and Handling, Agricultural Air Conditioning System Maintenance, Chemical Application and Calibration, Basic Welding, Advanced Welding, Grape Pruning, Grape Budding, Basic Tractor Operation, Wheel Tractor Operation, Crawler Tractor Operation, Tree Pruning and Truck Tractor Operation.

The teaching guides were distributed to vocational agricultural instructors throughout the state and are still available for purchase through the Student Bookstore, California State University, Chico. The teaching guides have been purchased by educators in California and other states. Farm managers are buying the teaching guides as on-the-job training material for their foremen to use when training workers.

The success of the short course program has demonstrated the need for job related training in agriculture, but the demand for training cannot be met without the preparation of short course instructors. There is a shortage of vocational agriculture teachers with credentials in California. To help resolve this problem, a program has been initiated by the Bureau of Agricultural Education to identify and prepare individuals to be part-time instructors. The part-time instructor is an individual that has five years of demonstrated experience in their instructional area, a high school diploma (or GED) and a desire to teach. The program is directing a special emphasis on the recruitment and preparation of bilingual part-time instructors.

CONCLUSION

The Phase II provided the REI staff with the opportunity to demonstrate the Farm Job Ladder structure on a number of operating farms. It was found that the new career ladder structure needed to be modified if it was also going to be used as a practical manpower planning document. It was found that a number of supporting systems needed to be developed if the career ladder structure was to be implemented. The short course skill training program was needed to provide farm workers with a broader range of job skills to fill the new year round job arrangements. The adult school system needed support in the development of this program, both in the development of teaching guides

and an additional teaching resource. Further, the adult schools need to develop a capability of teaching the short courses in the primary language of the farm worker, Spanish.

It was found that the farm employer is sadly lacking in an understanding of labor management. Classes specifically designed for agricultural personnel management and farm supervision are not offered at the adult school, community college or university. The University of California Cooperative Extension, which provides a broad range of technical assi tance to agriculture in areas of crop production, does not have the capability to deliver technical assistance to growers in the area of farm personnel management.*

If the career ladder structure is to be implemented on any scale in California, it needs the broad base support and participation by those governmental agencies that serve this labor market. This includes the University, the Cooperative Extension, the adult schools, the community colleges and the State Employment Service. A new system of services must be developed that will emphasize a new system of permanent and year round farm jobs, not short term, seasonal farm jobs. The development and implementation of this new system was the primary objective of the project's third phase.

*As a result of the REI demonstration, a new Cooperative Extension position, Personnel Management Advisor, was established in Fresno county in January, 1977, on a two year trial basis.

IV. PHASE III

INTRODUCTION

The primary objective of Phase III has been to encourage and promote the use of the Farm Job Ladder materials by the public and private agencies that serve California agriculture (the project name was changed to California Agricultural Career System). There were two ways we could have approached this assignment. One approach would have been to turn over our materials to the appropriate state agencies and let them decide how this new information should be merged with their current operational procedures. The second option would have been to develop a new system of service delivery and clearly spell out the role of each participating agency in the design. Since the new career design implies a change to the current method of delivering services or a new set of services, it has been decided that each component of the system should be implemented in unison as a total program. However, the task of orchestrating a new delivery system that requires new services and close interagency coordination has not been an easy assignment.

Our first task was to develop a plan to disseminate information about the new career system to a broad range of individuals representing the agricultural industry and various agencies of state and local government. One approach was through a project newsletter and the other was through a series of informational conferences given at five locations throughout the state.

ACRES NEWSLETTER

The first project newletter, Acres (Agricultural Careers Research and Education System), was published in September, 1974. Over 1800 copies were distributed throughout California, with some copies going to agricultural officials in other states. Their response to the newsletter was overwhelming. It served as an excellent source of information to individuals unfamiliar with the project. Further, it helped us achieve our goal of coordinating information and work activities with those individuals who are actually on the payroll of other agencies and organizations, but who had the responsibility of working with us on the CACS project.

INFORMATIONAL WORKSHOPS

The REI worked closely with representatives from three state agencies to develop, coordinate and conduct two series of informational workshops at five locations in California.

The first group of workshops, "The Implementation of Modern Management in California Agriculture", was co-sponsored and represented by the Bureau of Agricultural Education, Department of Vocational Education (DVE), the University of California Cooperative Extension and the Chancellor's Office of the California Community Colleges.

There were two workshops given at the University of California, Davis, one at the California State University at Chico, two sessions at Fresno, one at Hartnell College in Salinas and two sessions at the University of California, Riverside.

There were three major objectives established for the workshop sessions. Our primary objective was to receive feedback from different agricultural representatives regarding the applicability of the Farm Job Ladder structure, the short course training program and the related farm manpower management component. This was the first real exposure of the career system to a group of individuals outside of the Project Advisory Committee. The second objective was to bring together representatives from different agencies and organizations who shared a common concern regarding modern labor management in California agriculture. We purposely directed our workshop announcements to county farm advisors, adult school administrators and teachers, representatives of farm organizations, representatives of CETA Title I and 303 Prime Sponsors, and growers. To our knowledge, this was the first time a workshop had ever been conducted for the purpose of discussing the common problem: the development of a career structure and modern labor management practices in California agriculture.

The agricultural career system concept was well received by the 175 individuals attending the workshops. It was frequently stated that this was the first

time representatives from different agencies and organizations had an opportunity to meet one another, even though they play (or should play) an important role in serving the education and training needs of California agriculture. There was also a general agreement regarding the role each agency should take in the implementation of the system.

MULTI-COUNTY CETA PROPOSAL

The informational workshops provided the opportunity to meet individuals throughout the state who shared our interest in the development and implementation of the inter-agency career system. Since there was general acceptance as to the role each agency should play in this system, the next step was to identify one or more counties in California that would participate in a demonstration project.

In May, 1975, the REI staff developed a proposal to demonstrate the agricultural career system in three county areas: Fresno, Butte and Stanislaus. The proposal was titled "Agricultural Employment Development and Training System--a Multi-Agency Demonstration" and was submitted to the State Manpower Service Council (Governor's 4% CETA Discretionary fund). The purpose of the project was to provide staff for those existing agencies responsible for providing employment, training, and educational services to the agricultural labor market, both workers and employers. The objectives of the project were as follows:

1. The short range objective (year 1) was the development of an inter-agency delivery system in each county.

   UCCE: Three Personnel Management Specialists (PMS), one for each county, would be assigned to the County Farm Advisor's office to provide agricultural employers with education and training in techniques of modern personnel management.

   EDD: Three Agricultural Employment Specialists (AES), one assigned to each county, would provide job development and placement services to this project. The AES would coordinate manpower services with the local CETA sponsor.

REI: Two Educational Resources Coordinators (ERC), would be hired under an inter-agency agreement with the Chancellor's Office, California Community Colleges, and the Department of Vocational Education to provide technical assistance and support to local adult school programs, Regional Occupational Programs, and community colleges to develop job related skill training programs for farm workers.

2. The second objective (years 1 and 2) was the development of new year round jobs and skill training opportunities for underemployed farm workers.

3. The long range objective (after year 2) was the full implementation of the System and the continued cooperative effort of the participating agencies with no further expenditure of CETA funds.

Projected Results:

1. New permanent and year round jobs would be developed for seasonally employed farm workers (year 1 - 600 new jobs, year 2 - 800 new jobs). The results would be higher annual incomes, improved fringe benefits, improved job skills, and opportunities for upward advancement for agricultural employees.

2. The agricultural employer would be insured of a stable, dependable, and skilled work force. This would reduce employee costs and increase work productivity by substantially reducing labor turnover cost, training cost, and equipment repair cost.

3. The implementation of the System would result in the skill training of over 1000 farm workers the first year. Once the System was established and in full operation, over 1500 farm workers would be trained during the second year; this number would increase each year thereafter until a stable work arrangement was achieved.

4. This coordination effort would expand the capabilities of employer, agency, and organizational representatives to serve the employment and skill training needs of seasonally employed farm workers and would reduce duplication of services.

5. This project was designed to eliminate three training cost factors commonly associated with CETA projects:

   a. all training costs for this project would be provided through regular vocational education or State Average Daily Attendance (ADA) funds;
   b. the seasonal farm worker would be employed during the winter thereby eliminating the need for stipend payments; and
   c. there would be no need for on-the-job training reimbursement.

   However, it was proposed that the project staff coordinate their efforts with the local CETA sponsors and seek client support services

from this resource.

It was the intent of this project to create a system within existing agencies and resources, not to establish a duplicating system.

Unfortunately, the three county demonstration project was not funded. The proposal was reviewed as being too expensive, too large in scope and too "unbelievable" to be funded. There was a general feeling that farm jobs could not be stabilized. Some of the reviewers felt that machines would displace most farm workers in the future and employment for farm workers should be developed outside of agriculture. The individuals reviewing the proposal had little or no knowledge of California agriculture and paid little attention to the letters of endorsement that were attached to the proposal from the directors of each of the participating agencies, local CETA officials and from grower associations and organizations.

A few months after the rejection of the three county proposal, we were approached by a State CETA official who expressed an interest to try a modest one county demonstration of the interagency model. It was agreed that we would take the lead to pull the various agencies together in Fresno county and use State CETA funds as "glue" money to buy those services that could not be obtained as in-kind contribution from the local agencies. It was also agreed that if the Fresno demonstration proved to be successful, then there would be some interest to expand the model to other agricultural counties in the state.

In October, 1975, we conducted an interagency planning meeting in Fresno to explain the various components of the program and to obtain a commitment from the various agency officials. Everyone agreed to participate in the program and the REI was asked to develop the program proposal. The Fresno project became operational in January, 1976.

FRESNO PROJECT

The purpose of this project has been to establish and demonstrate, in Fresno County, an interagency consortium of employment, skill training and employer

education services designed to develop and promote the use of new permanent and year round farm job arrangements, and to provide skill upgrade training for the underemployed (seasonally employed) and unemployed farm worker.

PROJECT DESIGN

The design of the project is unique. It represents the systematic merging of new farm personnel management, training techniques and materials (developed by REI) with the existing employment, manpower and training resources to develop a new coordinative delivery system of employment, employer, and training services to the Fresno County agricultural labor market.

Fresno County was chosen as the appropriate location to develop and demonstrate this new delivery system because:

1. Fresno County is the leading agricultural county in the world.
2. There is a broad base of different crops produced, and a variety of farm sizes and management arrangements available in the county.
3. There is a large underemployed farm work force that resides year round in the county. According to EDD statistics, close to 9,000 farm workers received supplemental unemployment insurance benefits the first six months of 1975. This figure is expected to increase in the future.
4. The established employment, training, manpower and employer service agencies and organizations in Fresno County endorsed the design of the project and made a commitment to participate. Without this commitment, the proposal could not have been developed, and the demonstration would not have been possible. The agencies and organizations that agreed to participate in the project were as follows:

   Bureau of Agricultural Education, Dept. of Vocational Educ. (BAE)
   California Community Colleges (CCC)
   California State University, Fresno (CSUF)
   Employment Development Department (EDD)
   Fresno City/County Manpower Commission (FCCMC)
   Fresno County Farm Bureau (FCFB)
   Greater California Education Project (GCEP)
   La Cooperativa Campesina de California (LCCC)
   Reedley College (RC)
   Rural Economics Institute (REI)
   University Extension, Davis (UNEX)
   University of California Cooperative Extension (UCCE)
   West San Joaquin Regional Occupational Program (WSJROP)
   West Hills College (WHC)

PROJECT ACTIVITIES

The Fresno demonstration represents the implementation of the REI research by the appropriate state and local agencies in a unified and coordinative approach designed to stabilize farm employment and to provide skill upgrade training to members of the underemployed (and underskilled) farm work force. The functions of the agencies participating in this project are as follows:

EDD: The EDD agreed to provide the regular range of employment services to the farm client, including the referral of UI claimants to the short courses for skill upgrade training. The project staff obtained a ruling whereby UI claimants can attend the short courses and continue to draw their UI benefits (as long as they are able and available for work).

The EDD has presented a series of Employer Seminars on farm personnel policies and personnel record keeping that bring farm employers in compliance with UI and other labor regulations. This activity is a vital part of the overall employer education component of the model.

FCCMC: CETA clients are referred to the short courses by the EDD personnel assigned to the seven rural offices. CETA clients who are attending the Basic Education and ESL classes are allowed release time if they desire to attend the skill training classes.

RC/WHC: The two community colleges serving Fresno County offer a series of 40-60 farm skill training short courses. These classes include farm equipment operation, repair and service, hydraulics, pruning, truck driving, engine tune-up and supervisory training. Also included is a short course designed to prepare bilingual English/Spanish part-time instructors. All classes have a Spanish speaking instructor or aide and are funded by vocational education funds. The State CETA provides an Education Coordinator to assist in the development and promotion of the classes.

UCCE: The county farm advisor's office contributes a Personnel Management Advisor, a new position, to provide technical assistance and education to agri-business employers on modern techniques of personnel management. This includes the development of personnel policies, job descriptions (for year round jobs) and the coordination with the other employment and training agencies participating in this project.

FCFB: The Farm Bureau is represented on the Project Operations Committee (along with representatives for the other agencies) and is a source of employer information to the project.

GCEP: The Greater California Education Project is the CETA, Title 303 grantee for Fresno County. It is important that resources of this farm worker client organization are included in the project operation. It is anticipated that GCEP's role will be related to client supportive services, outreach, referral and follow up.

LCC: La Cooperativa Campesina de California is a federation of CETA, 303 sponsors and EDD. The Cooperativa staff works closely with the project to assist in establishing the coordination between the community based organizations and the established agencies.

PROJECT OPERATIONS COMMITTEE

A Project Operations Committee has been established in Fresno and consists of representatives from each of the participating agencies and organizations listed above. This committee provides guidance to the project, assures coordination between agencies, provides recommendations for changes in the project design, and assists in the evaluation process.

ROLE OF THE RURAL ECONOMICS INSTITUTE

The role of REI is to act as a catalyst in Fresno to get the interagency relationships established; to provide the initial direction and leadership to the Project Operations Committee; to provide orientation and training to the staff who are assigned to work on the project; and to assist the Operations Committee in working through the interagency and intra-agency operational problems.

EARLY RESULTS

The early results of the Fresno project have been very positive. While there are definite operational problems with an interagency, coordinative type of program design, the subtle group pressure and honest exchange of problems by members of the Operations Committee tends to keep everyone moving in a common direction.

The program component that seems to have a broad base of appeal is the short term skill training classes. The short courses are offered by the local

community college, and enrollment is open to everyone. The rationale behind this design is to integrate CETA clients and other unemployed and underemployed farmworkers with growers, foremen and other individuals who are employed and have access to employment opportunities. Fifteen short courses were offered in Fresno during 1976 with an enrollment of 260 students. (There are thirty additional classes scheduled through July, 1977.) Eighty-eight of these students were referred to the class by the Employment Development Department and twenty-two of these referrals received employment after the completion of the short course. A hundred and twenty-three of the students attending the classes were either farm owners, managers or employees who desired skill up-grade training. The remaining forty-nine students were "walk-ins", or individuals who read about the class in the newpaper and were interested in the training.

There are some interesting CETA policy implications related to the short course training program. There is growing evidence to support the contention that attendance to short courses can either lead directly to employment, or can provide additional skills that expand the opportunities for extended employment. Therefore, the use of CETA training funds to finance some share of the short courses would be a wise investment of CETA money.

The other successful component of the Fresno project is the outreach, referral and placement support provided by the Employment Development Department. The EDD outreach workers visit the migrant labor camps and assist in providing transportation of migrant farm workers to the short courses. A project evaluation design and client follow-up procedure has been implemented and the initial findings indicate that some of the EDD referrals to the short courses obtained permanent employment, stabilized out of the migrant pattern and were even purchasing homes in the rural areas of the county.

The EDD also has taken the leadership to implement an employer education program designed to provide farm employers with information regarding personnel policies, personnel record keeping and information about unemployment insurance.

The EDD Employer Seminars are well attended by farm employers and their response to the information and materials is excellent. It appears, however, that the employer education program should be expanded to include additional technical information in areas of personnel planning, job development, job description development and other techniques of personnel management that would enhance the implementation of the career ladder structure.

The University of California Cooperative Extension has contributed a new farm advisor position to the Fresno project. The new Personnel Management Advisor will provide direct technical assistance to farm employers on techniques of modern labor management. However, since this position was filled on January 3, 1977, it is too early to assess the impact of this job on the overall project design. The early results from Fresno point out the need for an aggressive and well coordinated program of employer education.

EXPANSION

The positive results of the Fresno demonstration have encouraged the expansion of the interagency model to a number of other counties. The EDD received additional funding support from Title II of the Public Works Employment Act and will be training staff to expand the employer seminar program and interagency career system. The REI will assist in the development of an interagency Program Operations Committee in the expansion counties.

Dr. John Mamer, Economist, University of California Cooperative Extension, is developing a new proposal to enlarge the Extension's role in employer education. He is proposing an educational series in agricultural personnel management that will be made available to farm employers, free of charge, through the established program of technical assistance provided by the county farm advisor's office. Further, he is proposing the development of an agricultural personnel management manual that would be available to each UCCE county office. The manual would be a loose leaf, three ring binder type of guide that has up-to-date information on agricultural labor law, personnel practices, sample personnel policies, job descriptions, job application forms, the Farm Career Ladder structure and other basic personnel

material. While California is the vanguard of changing labor management practices, most of the techniques developed here are applicable in other states. This manual, of course, should be made available to the Cooperative Extension program in those states that desire this information.

The adult education and CETA officials in the expansion areas have expressed strong support for the farm career system and have pledged to participate in an interagency program. As of this writing, the plan is to establish some variation of the Fresno model in five or more counties during the 1977-78 school year.

PERSONNEL MANAGEMENT IN CALIFORNIA AGRI-INDUSTRY

The need for California farm managers to understand and apply techniques of modern personnel management has been stressed throughout this report. We encountered this training problem first hand when we attempted to demonstrate the new job ladder structure on the six participating farms. In an effort to support the implementation of the job structure, we had to develop a number of basic personnel documents. This included a standard job application form for farm jobs, elements of a uniform personnel policy, an applicant interview guide, a job related skill demonstration test, plus other recruitment and selection techniques. All of these basic documents are items widely used and accepted in other industries, but have never been developed for agriculture.

In the spring of 1975, we approached the officials at the University Extension, Davis, and suggested that they offer a series in farm personnel management. They were in the process of completing a professional development program for California agri-industry and agreed that personnel management was an area that should be covered. Further, it was agreed that the REI Director of Training would develop and teach the personnel management series for the University Extension.

During the winter of 1975-76, there were over six hundred enrollments for the personnel management classes. The classes were offered at five locations: Davis, Fresno, Salinas, Bakersfield and Riverside. This same series is being offered this winter at the same locations, with the exception of Riverside. It was decided to move the classes to El Centro, a location closer to the prime agricultural area in Imperial County.

A brief description of the personnel management series is as follows:

Leadership:	A brief review of the history of leadership theory, definitions of leadership, and commonly documented activities of leaders, emphasizing the application of modern personnel management theory to the agri-industry. Covers delegation, leadership style, developing leadership skills and how to encourage leadership skills in subordinates.
Motivation:	Provides agricultural managers with a number of interpretations of human motivation in work situations. The seminar focuses on understanding human behavior, provides a process for self-evaluation, and evaluates specific work groups and work situations relevant to agriculture.
Personnel Practices:	An examination of the personnel function in agri-industry. Topics include job design, job description, standards of performance, training, and the development and administration of personnel policies.
Setting Goals and Objectives:	Covers how to set daily goals and objectives, action planning, developing adequate control follow-up. Participants learn a step-by-step process useful for both individual and organizational performance. Includes individual work in analyzing and developing goals and objectives.
Effective Problem Solving:	Combines theory and practice, emphasizing creative approaches to problem solving and ways to reduce and eliminate barriers to creative thinking. Offers problem solving procedures and practice with case studies and simulation exercises.

Communication:	Analyzes the communication process as it applied to interpersonal, group and organizational communication. The focus is on practical solutions to problems faced in the agri-industry. Covers recognizing and removing barriers to communication, giving and receiving feedback, handling complaints and grievances, giving orders and directions, developing communication awareness.
Recruiting, Selecting, Evaluating and Terminating Employees:	Designed specifically for those who are actively engaged in employment and termination functions in agricultural organizations, this seminar focuses on employing and terminating employees. Discussions and demonstrations cover appropriate forms and interviews for employment, termination and performance.

V. CONCLUSION

The successful implementation of the interagency agricultural career system in Fresno County, and the plans to expand this system to other counties represents a significant achievement. From Dr. Becket's original concept of a career ladder for farmworkers, this R/D effort has moved from the research and demonstration phase to the implementation of an interagency farm career development system in the world's number one agricultural county. Moreover, this system draws upon the resources of the established state and local agencies to develop an interlinking network of services. This approach eliminates needless duplication of effort and provides a coordinative range of services to a rapidly changing labor market.

Perhaps we are still a few years away from making some judgement regarding the relative value of this research and development expenditure. Perhaps the implementation of a career system for California agriculture would have evolved naturally as industrial labor standards (NLRA, UI, wage and hour provisions) all extended to farm jobs.

There is no questions in our mind that the enactment of new farm labor laws was the club that gained the attention of both employers and agency officials to explore alternative labor management practices. Without this attention, it is likely that the farm job ladder research, short course training curricula and farm personnel management material would have been relegated to the shelf as another interesting, but inappropriate research document. Instead, the research was relevant and timely. But most important, the research was implemented; not just by one agency of government, but by all of those public and private agencies that have some influence in California agriculture.

Of course all of the material developed during this five year period could not be compressed into this report. Certainly we would be flattered to receive requests for any of the documents listed in the introduction. Inquiries should be directed to the Director, Rural Economics Institute, 630 Second Street, Davis, California 95616.